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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,381	08/04/2003	Ken Ioka	03468/LH	8180
1933	7590	03/22/2006	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC			MARTIN, LAURA E	
220 Fifth Avenue			ART UNIT	
16TH Floor			PAPER NUMBER	
NEW YORK, NY 10001-7708			2853	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

RD

**Office Action Summary**

Application No.

10/634,381

Applicant(s)

IOKA ET AL.

Examiner

Laura E. Martin

Art Unit

2853

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4,6,7,9-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7,9-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al. (US 20020008731).

Matsumoto et al. teaches an image forming apparatus comprising: a recording head unit (figure 1, element 22) in which a plurality of recording heads are arranged in substantially the same direction as an arranging direction of recording elements such that an overlapped region is formed between the heads [0026]; a detector which detects a width of the overlapped region of each of said plurality of recording heads from a predetermined test chart printed using the recording head unit [0063]; and an image data distributor which distributes image data input to each of said plurality of recording heads, in accordance with the detected width of the overlapped region between the heads [0070]. Matsumoto et al. also teaches an image forming apparatus wherein a plurality of said recording head units are provided in accordance with different color outputs ([0076]; figure 9).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 7, 9, and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 20020008731) in view of Beauchamp et al. (US 6474765).

Matsumoto et al. teaches an image forming apparatus comprising: a recording head unit (figure 1, element 22) in which a plurality of recording heads are arranged in substantially the same direction as an arranging direction of recording elements such that an overlapped region is formed between the heads [0026]; a detector which detects a width of the overlapped region of each of said plurality of recording heads from a predetermined test chart printed using the recording head unit [0063]; and an image data distributor which distributes image data input to each of said plurality of recording heads, in accordance with the detected width of the overlapped region between the heads [0070]. Matsumoto et al. also teaches an image forming apparatus wherein a plurality of said recording head units are provided in accordance with different color outputs ([0076]; figure 9).

Matsumoto et al. does not teach a detector which detects a set angle, a driving timing correction unit which, when driving the recording elements of each of said plurality of recording heads in accordance with the distributed image data, corrects a driving timing of each recording element in accordance with the detected set angle; and an image forming apparatus wherein if at least one of said plurality of recording heads is replaced or adjusted, a predetermined test chart is printed, and the width of the overlapped region of each of said plurality of recording heads is detected again from the printed test chart.

Beauchamp et al. teaches a detector which detects a set angle (column 6, lines 40-46 and column 7, lines 13-27), a driving timing correction unit which, when driving the recording elements of each of said plurality of recording heads in accordance with the distributed image data, corrects a driving timing of each recording element in accordance with the detected set angle (column 7, lines 41-66); and an image forming apparatus wherein if at least one of said plurality of recording heads is replaced or adjusted, a predetermined test chart is printed, and the width of the overlapped region of each of said plurality of recording heads is detected again from the printed test chart (column 7, lines 12-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the image forming apparatus of Matsumoto et al. with the disclosure of Beauchamp et al. in order to improve image quality.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 20020008731) in view of Noyes et al. (US 6775022).

Matsumoto et al. teaches the ink forming apparatus of claim 1; however, it does not teach a notification unit which, if the detected width of the overlapped region of one of the said plurality of recording heads exceeds a predetermined allowable range, notifies a message demanding replacement or adjustment of the recording head.

Noyes et al. teaches a notification unit which, if the detected width of the overlapped region of one of the said plurality of recording heads exceeds a

predetermined allowable range, notifies a message demanding replacement or adjustment of the recording head (column 56, lines 21-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Ink forming apparatus of Matsumoto et al. with the disclosure of Noyes et al. in order to allow for easier user operation.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 20020008731) and Beauchamp et al. (US 6474765) in view of Noyes et al. (US 6775022).

Matsumoto et al. and Beauchamp et al. teach the ink forming apparatus of claim 3; however, neither teaches a notification unit which, if the detected width of the overlapped region of one of the said plurality of recording heads exceeds a predetermined allowable range, notifies a message demanding replacement or adjustment of the recording head.

Noyes et al. teaches a notification unit which, if the detected width of the overlapped region of one of the said plurality of recording heads exceeds a predetermined allowable range, notifies a message demanding replacement or adjustment of the recording head (column 56, lines 21-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Ink forming apparatus of Matsumoto et al. as modified with the disclosure of Noyes et al. in order to allow for easier user operation.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 20020008731) in view of Serra et al. (US 20040021715).

Matsumoto et al. teaches the ink forming apparatus of claim 1; however, it does not disclose when the image data corresponding to the overlapped region is a line image is determined, and if the line data is found to be a line image, the image data is so distributed that no complementary printing is performed in the overlapped region.

Serra et al. teaches when the image data corresponding to the overlapped region is a line image is determined, and if the line data is found to be a line image, the image data is so distributed that no complementary printing is performed in the overlapped region (figure 5B, [0031]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink forming apparatus of Matsumoto et al. with the disclosure of Serra et al. in order to create a higher quality printed image.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 20020008731) and Beauchamp et al. (US 6474765) in view of Serra et al. (US 20040021715).

Matsumoto et al. and Beauchamp et al. teach the ink forming apparatus of claim 3; however, it does not disclose when the image data corresponding to the overlapped region is a line image is determined, and if the line data is found to be a line image, the image data is so distributed that no complementary printing is performed in the overlapped region.

Serra et al. teaches when the image data corresponding to the overlapped region is a line image is determined, and if the line data is found to be a line image, the image data is so distributed that no complementary printing is performed in the overlapped region (figure 5B, [0031]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink forming apparatus of Matsumoto et al. as modified with the disclosure of Serra et al. in order to create a higher quality printed image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

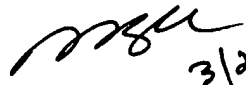
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin

  
3/29/06  
**MANISH S. SHAH**  
**PRIMARY EXAMINER**